

Mount Rainier: New Remote Sensing Observations of a Decade  
Volcano

V J Realmuto, H A Zebker (Jet Propulsion Laboratory,  
California Institute of Technology, Pasadena, CA, 91 109)  
D Frank (U.S. Environmental Protection Agency, Seattle, WA, 98101)

Mount Rainier was selected as a Decade Volcano by the international Association of Volcanology and Chemistry of the Earth's Interior. The purpose of this selection is to focus scientific and public attention on Mount Rainier during the current decade, the United Nations-designated International Decade of Natural Hazard Reduction. The Mount Rainier science plan calls for remote sensing surveys to monitor the volcano. To date, we have conducted airborne surveys with visible and near-infrared, thermal infrared, and interferometric radar instruments.

We conducted night-time thermal infrared surveys of the summit of Mount Rainier in 1989, 1991, 1992, and 1994. Our preliminary analysis of this time-series of data sets suggests that, aside from seasonal variations in snow cover, there have been no qualitative changes in the size or pattern of the summit hot spots.

We conducted day-time airborne surveys of the summit of Mount Rainier in 1994. These data sets include visible, near-infrared, and thermal infrared radiance measurements, together with aerial photographs. The objectives of the day-time surveys were to record the current surface appearance of the volcano and map hydrothermal alteration in the summit region.

Our first acquisition of interferometric radar data over Mount Rainier took place in 1994. This survey yielded a high-resolution digital elevation model (DEM) of the volcano, which serves as a base for the registration of the other remote sensing data sets. More importantly, the DEM documents the current topography of glaciers and valleys. Planned biannual radar surveys of Mount Rainier will produce a data set from which the seasonal changes in glacier and valley topography can be characterized. Such characterization is essential if we are to recognize geothermally-induced changes in snow and ice cover.

1. 1994 Fall Meeting

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3. (a) Vincent J. Realmuto  
M.S 183-501  
Jet Propulsion Laboratory,  
California Institute of Technology  
4800 Oak Grove Drive  
Pasadena, CA 91109

(b) phone: 818-354-1824

(c) fax: 818-354-0966

(d) vince@vulcano.jpl.nasa.gov

4. V

5. (a)

(b) 8419: Eruption Monitoring  
8494: Instruments and Tech.  
8499: General or Misc.

(c) Natural Hazards; Remote Sens.

6.

7. 070

8. \$50 check enclosed

9. C

10. Willing to chair session

11. No